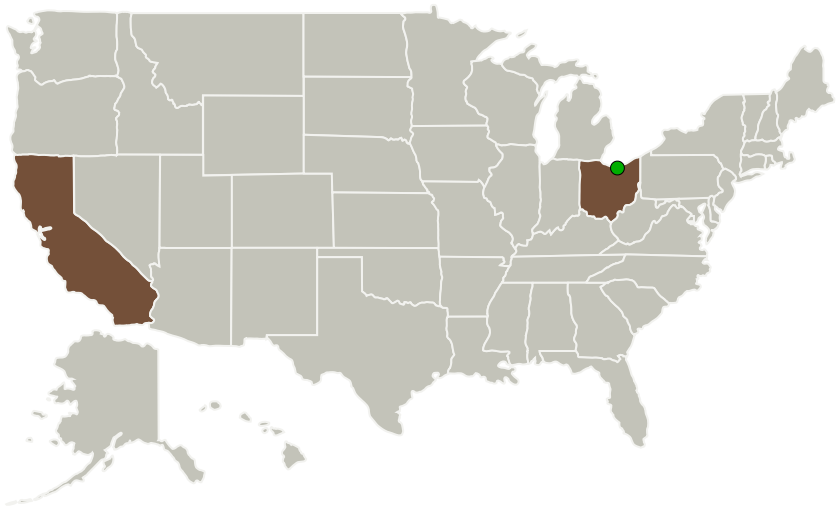
Development of Fast Response SME TiNi Foam Torque Tubes, Phase II

Completed Technology Project (2010 - 2012)

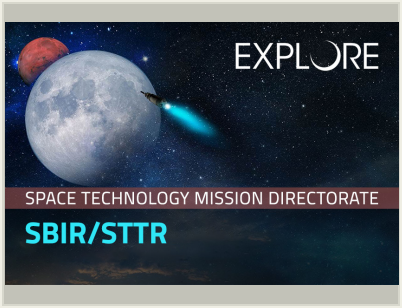
Project Introduction

In Phase I, Shape Change Technologies had developed a process to manufacture net shape TiNi foam torque tubes that demonstrated the shape memory effect. The torque tubes dramatically reduce the response time by a factor of 10 and with integrated hexagonal ends, make structural connections fascile. In Phase II we see to mature this actuator technology by rigorously characterizing the process to optimize the quality of the TiNi and develop a set of metrics to provide ISO 9002 quality assurance. With the rapid response time, a Labview based real time control of the torsional actuators will be developed. With team partner Boeing, we will develop these actuators for aerospace applications and Boeing will independently characterize the actuators.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Shape Change Technologies	Lead Organization	Industry	Thousand Oaks, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Primary U.S. Work Locations	
California	Ohio

Project Transitions

February 2010: Project Start

May 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138930)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Shape Change Technologies

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

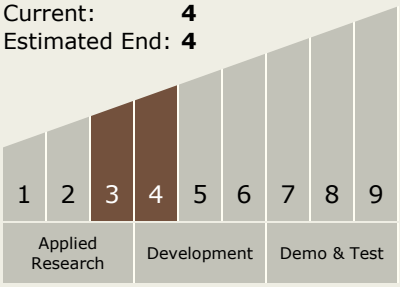
Carlos Torrez

Principal Investigator:

Andrew P Jardine

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Completed Technology Project (2010 - 2012)

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.8 Smart Materials

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System